

IN THE CLAIMS:

Please cancel claims 19, 39-41 and 52-53 and amend the remaining claims as follows:

18. (Currently Amended) A network attached memory device comprising:
a CPU, and said network attached memory device having a device ID, and said device ID comprising an index to a device entry in a device ID lookup table;
a memory having at least one memory block, and said memory block having a block ID;
a connection to a network; and
a memory management function managing said memory block in said memory, means for providing access to said memory block to a computing device attached elsewhere to said network such that a memory location in said memory block has a virtual address comprising said device ID, said block ID and an offset in said memory block.

19. Cancelled

20. (Currently Amended) A network attached memory device according to claim 18 wherein said computing device has a said device ID lookup table, and said device ID is an index to a device entry in the said device ID lookup table, and said device entry includes at least network connection information to the said network attached memory device
means for providing access provides said computing device access to said memory by memory address translation between a memory address in said computing device and a memory address in said network attached memory device.

21. (Currently Amended) A network attached memory device according to claim 18 wherein said memory address comprises a DMCE Virtual Address said memory management function includes a memory block ID lookup table, and said block ID of said memory block is an index to an entry in said memory block ID lookup table, and said entry having at least a starting address of said memory block.

22. (Currently Amended) A network attached memory device according to claim 18
21 wherein said means for providing access to a memory location in said memory block
by combining said starting address that is associated with said block ID which is part of
said virtual address of said memory location and said offset of said virtual address of said
memory location ~~access comprises means for treating a memory block in said memory as~~
~~an extended part of a system memory in said computing device.~~

23. (Currently Amended) A network attached memory device according to claim 18
wherein said computing device can send a request to said network attached memory
device to reserve a second memory block in said memory in said network attached
memory device ~~memory management function comprises means for providing a memory~~
~~block in said memory to said computing device for access and marking said memory~~
~~block as used.~~

24. (Currently Amended) A network attached memory device according to claim 23
wherein wherein said request includes at least a desired memory size of said second
memory block ~~memory management function comprises means for providing one-to-one~~
~~ownership of a memory block in said memory to said computing device.~~

25. (Currently Amended) A network attached memory device according to claim 18
24 wherein said network attached memory device returns a failure message to said
computing device if available memory in said memory is less than said desired memory
size at the time of said request ~~memory management function comprises means for~~
~~keeping a record of used memory blocks in said memory.~~

26. (Currently Amended) A network attached memory device according to claim 18
24 wherein said network attached memory device returns at least a partial success
message to computing device if available memory in said memory is less than said
desired memory size but not empty at the time of said request, and the said available

memory is reserved for said computing device memory management function comprises means for keeping a record of unused memory blocks in said memory.

27. (Currently Amended) A network attached memory device according to claim 24 wherein said network attached memory device returns at least a success message to said computing device if available memory in said memory is larger than said desired memory size at the time of said request, and a said second memory block of said desired size is reserved for said computing device memory management function comprises means for keeping a record of said one to one ownership between said computing device and said memory block.

28. (Currently Amended) A network attached memory device according to claim 23 26 wherein said partial success message comprises the size of reserved said second memory block memory management function further comprises means for marking said memory block as unused when said computing device frees said memory block.

29. (Currently Amended) A network attached memory device according to claim 24 27 wherein said success message comprises the desired size memory management function provides said computing device with exclusive access to said memory block.

30. (Currently Amended) A network attached memory device according to claim 18 wherein said computing device sends an access request to a memory location in said network attached memory device by sending at least said virtual address of said memory location to the said network attached memory device memory management function comprises means for copying data from said memory block to said computing device when said computing device requests said data by providing a memory address of said memory block.

31. (Currently Amended) A network attached memory device according to claim 30 18 wherein said memory block has a backup block in said network attached memory

device, and the content of said memory block can be copied from or to said backup block
data comprises image data.

32. (Currently Amended) A network attached memory device according to claim 18
31 wherein said backup block is a second memory block in said network attached
memory device memory management function further comprises means for copying data
received from said computing device into a memory block in said memory corresponding
to a memory address received from said computing device.

33. (Currently Amended) A network attached memory device according to claim 18
31 wherein said network attached memory device further comprises a non-volatile
storage, and said backup block is a storage block in said non-volatile storage memory
management function further comprises means for allocating a second memory block in
said memory to said computing device.

34. (Currently Amended) A network attached memory device according to claim 24
31 wherein said network attached memory device further comprises a backup lookup
table, and said backup block has an associated entry in said block lookup table memory
management function further comprises means for freeing a memory block from said one-
to-one correspondence with said computing device.

35. (Currently Amended) A network attached memory device according to claim 18
wherein said memory block has a backup block in a second network attached device, and
the content of said memory block can be copied from or to said backup block in said
second network attached device memory management function uses substantial
computing time of said CPU.

36. (Currently Amended) A network attached memory device according to claim 18
35 wherein said network attached memory device further comprises a backup lookup

table, and said backup block has an associated entry in said backup lookup table CPU is primarily dedicated to said memory management function.

37. (Currently Amended) A network attached memory device according to claim 18 34 wherein said associated entry comprises at least block ID of said memory block, a starting address of said backup block and a size of said backup block connection to a network comprises an Ethernet connection.

38. (Currently Amended) A network attached memory device according to claim 18 36 wherein said associated entry comprises at least block ID of said memory block, a starting address of said backup block and a size of said backup block memory comprises a plurality of memory blocks having different sizes.

39. Cancelled.

40. Cancelled.

41. Cancelled.

42. (Currently Amended) A memory service architecture comprising:

a first network attached memory device having first memory, having first device ID, said first device ID is a first index to a first entry in a device ID lookup table, and said first memory comprises at least a first memory block having a first block ID; and

a second network attached memory device having second memory, having second device ID, said second device ID is a second index to a second entry in said device ID lookup table, and said second memory comprises at least a second memory block having a second block ID; and

said first network attached memory device and said second network attached memory device are connected to a network;

wherein said first and second network attached memory devices provide to a separate computing device access said first memory and said second memory through said network connection, and a first memory location in said first memory block having a first virtual address comprising said first device ID, said first block ID and a first offset in said first memory block; and a second memory location in said second memory block having a second virtual address comprising said second device ID, said second block ID and a second offset in said second memory block.

43. (Currently Amended) A memory service architecture according to claim 42 further comprising a service dispatch function which has a said device ID lookup table and dispatches memory access requests from said separate computing device to said first or said second network attached memory devices ~~and responds to said separate computing devices based on responses from said first or second network attached memory devices.~~

44. (Original) A memory service architecture according to claim 43 wherein said service dispatch function resides on said first network attached memory device.

45. (Currently Amended) A memory service architecture according to claim 43 42 wherein said first entry comprises at least network connection information to said first network attached memory device, and said second entry comprises at least network connection information to said second network attached memory device service dispatch function resides on a dedicated device separate from first and second network attached memory devices.

46. (Currently Amended) A memory service architecture according to claim 43 42 wherein said separate computing device has a said device ID lookup table memory requests comprise allocating memory.

47. (Currently Amended) A memory service architecture according to claim 43 42 wherein said separate computing device sends a first access request to said first network

attached memory device by sending at least first virtual address of a first targeting memory location in said first network attached memory device memory requests comprise copying data from said separate computing device to at least one of said first and said second memory.

48. (Currently Amended) A memory service architecture according to claim 43 42 wherein said first memory block has a first backup block memory requests comprise copying data from said first or second memory in said memory area network to said other computing device.

49. (Currently Amended) A memory service architecture according to claim 43 48 wherein said first backup block is a third memory block in said first network attached memory device or in said second network attached memory device memory requests comprise freeing memory blocks from at least one of said first and said second network attached memory devices.

50. (Currently Amended) A memory service architecture network-attached memory deviee according to claim 18 48 wherein said first network attached memory device further comprises a first hard disk, and said first backup block is a storage block in said first hard disk wherein data stored in said memory block can be copied to said hard disk and data stored in said hard disk may be copied to said memory block.

51. (Currently Amended) A memory service architecture network-attached memory according to claim 50 48 wherein said second network attached memory device further comprises a second hard disk, and said first backup block is a storage block in said second hard disk data comprises image data.

52. Cancelled

53. Cancelled.